WHAT IS CLAIMED IS:

1. An apparatus comprising:

a handpiece having a needle and electrical means for ultrasonically vibrating said needle;

power source means for providing pulsed electrical power to the handpiece electrical means;

input means for enabling an operator to select an amplitude of the electrical pulses;

irrigation means for providing fluid during a surgical procedure conducted in a surgical environment, said irrigation means providing fluid during at least one modulated fluid burst period, said modulated fluid burst period comprising a fluid pulse within the surgical environment, followed by a de minimis fluid pulse; and

control means for controlling power supplied to the handpiece.

2. The apparatus of claim 1, said irrigation means comprising a fluid control device providing an ability to modulate fluid pulses having duration less than 100 milliseconds.

3. The apparatus of claim 1, wherein said control means control power supplied by providing power during at least one modulated energy delivery period.

4. The apparatus of claim 3, wherein said modulated energy delivery period operates in conjunction with the

modulated fluid burst period to enhance effects of a surgical procedure.

5. The apparatus of claim 4, wherein enhancing effects of the surgical procedure comprises improving acquisition and removal of tissue during the surgical procedure.

6. The apparatus of claim 4, wherein enhancing effects of the surgical procedure comprises enhancing effects from cavitation forces encountered during the surgical procedure.

7. The apparatus of claim 1, wherein said irrigation means further provides a subsequent nonzero amplitude fluid pulse.

8. The apparatus of claim 7, wherein amplitude of said subsequent nonzero amplitude fluid pulse materially differs from amplitude of said fluid pulse.

9. The apparatus of claim 7, wherein amplitude of said subsequent nonzero amplitude pulse is substantially identical to amplitude of said fluid pulse.

10. The apparatus of claim 1, wherein the fluid pulse produced by the irrigation means has a duration of at most approximately 25 milliseconds.

11. The apparatus of claim 1, wherein the fluid pulse produced by the irrigation means has a duration of at most approximately 8 milliseconds.

12. The apparatus of claim 1, wherein the input means comprises engagement/disengagement means, wherein operation of the apparatus is engaged via the control means at a first desired time when energy application is desired and operation of the apparatus is disengaged at a second desired time when energy application is not desired.

13. The apparatus of claim 12, wherein the engagement/disengagement means further operates to engage modulated irrigation at the first desired time and disengaged at the second desired time when modulated irrigation is not desired.

14. The apparatus of claim 12, wherein said engagement/disengagement means comprises a switch.

15. An apparatus comprising:

a handpiece having a needle and electrical means for ultrasonically vibrating said needle;

power source means for providing pulsed electrical power to the handpiece electrical means;

input means for enabling an operator to select an amplitude of the electrical pulses;

irrigation means for providing fluid from the handpiece, said fluid providing means controlling fluid provided by applying fluid for a fluid pulse period followed by applying de minimis fluid during a fluid pause period; and

control means for controlling power supplied to the handpiece.

16. The apparatus of claim 15, wherein said irrigation means comprise a fluid control device providing an ability to modulate fluid pulses having duration less than 100 milliseconds.

17. The apparatus of claim 15, wherein said control means controls power by providing ultrasonic power during at least one modulated energy delivery period.

18. The apparatus of claim 17, wherein said control means operates in timing relationship with the irrigation means to enhance effects of a surgical procedure.

19. The apparatus of claim 18, wherein enhancing effects of the surgical procedure comprises improving acquisition and removal of tissue during the surgical procedure.

20. The apparatus of claim 18, wherein enhancing effects of the surgical procedure comprises enhancing effects from cavitation forces encountered by the apparatus during the surgical procedure.

21. The apparatus of claim 15, wherein the lower energy period comprises applying fluid during the fluid pulse period at an amplitude selected using the input means.

22. The apparatus of claim 15, wherein the apparatus provides an ability to operate within an ocular environment, and further wherein power supplied by the

control means induces transient cavitation within the ocular environment thereby enabling cutting of ocular tissue.

23. The apparatus of claim 15, wherein said irrigation means controls power by further applying fluid for an additional nonzero fluid pulse period.

24. The apparatus of claim 15, further comprising means for engaging the control means at a first desired time when ultrasonic energy application is desired and disengaging the means at a second desired time when ultrasonic energy application is not desired.

25. The apparatus of claim 24, wherein said engaging/disengaging means further controls fluid application via the irrigation means.

26. The apparatus of claim 24, wherein said engaging means comprises a switch.

27. A method for delivering fluid to an ocular region during a phacoemulsification procedure, comprising:

irrigating the ocular region by applying a series of modulated fluid pulses to the ocular region via a fluid control device.

28. The method of claim 27, wherein irrigating comprises delivering pulses of fluid for a series of pulses having duration less than 100 milliseconds.

29. The method of claim 28, wherein said fluid pulses are interspersed by brief de minimis fluid pulse periods.

30. The method of claim 27, wherein fluid pulses are delivered using a phacoemulsification handpiece.

31. The method of claim 27, further comprising delivering modulated ultrasonic energy to the ocular region simultaneous with said irrigating.

32. The method of claim 31, wherein timing of modulated ultrasonic energy delivery corresponds to timing of the series of modulated fluid pulses.

33. The method of claim 31, wherein timing of modulated ultrasonic energy delivery differs from timing of the series of modulated fluid pulses.

34. The method of claim 31, wherein application of modulated ultrasonic energy delivery tends to induce transient cavitation in the ocular region.

35. The method of claim 27, wherein each fluid pulse is at most approximately 25 milliseconds.

36. The method of claim 27, wherein each fluid pulse is at most approximately eight milliseconds.

37. A method of delivering fluid to a region during a tissue removal procedure, comprising:

delivering modulated fluid pulses during an on period, fluid pulse delivery comprising:

delivering at least one pulse of fluid having a relatively high amplitude; and

delivering a de minimis quantity of fluid after delivering every high amplitude fluid pulse.

38. The method of claim 37, further comprising delivering modulated ultrasonic energy during multiple ultrasonic energy on periods interspersed by multiple de minimis ultrasonic energy application periods.

39. The method of claim 38, wherein the tissue removal procedure occurs within a tissue removal environment, and wherein delivering modulated ultrasonic energy tends to induce transient cavitation within the tissue removal environment.

40. The method of claim 37, wherein delivery of at least one pulse of fluid having the relatively high amplitude occurs for less than approximately 25 milliseconds.

41. The method of claim 37, wherein delivery of at least one pulse of fluid having the relatively high amplitude occurs for less than approximately 10 milliseconds.

42. The method of claim 37, wherein delivery of at least one pulse of fluid having the relatively high amplitude occurs for less than approximately 5 milliseconds.

43. The method of claim 37, wherein delivery of at least one pulse of fluid having the relatively high amplitude occurs for less than approximately 2 milliseconds.

44. A surgical apparatus, comprising:

means for applying fluid to an area, comprising:

irrigation means for applying modulated fluid pulses during a plurality of short burst periods, said short burst periods comprising a fluid burst period followed a predetermined time thereafter by a de minimis fluid delivery period.

45. The apparatus of claim 44, said means for applying fluid to an area further comprising tubing and fluid maintenance containers, wherein said fluid maintenance containers provide fluid to the tubing, and wherein said tubing carries fluid to the irrigation means.

46. The apparatus of claim 44, further comprising ultrasonic power delivery means, said ultrasonic power delivery means provides ultrasonic power during at least one modulated energy delivery period.

47. The apparatus of claim 46, wherein said control means operates in timing relationship with the irrigation means to enhance effects of a surgical procedure.

48. The apparatus of claim 47, wherein enhancing effects of the surgical procedure comprises improving acquisition and removal of tissue during the surgical procedure.

49. The apparatus of claim 47, wherein enhancing effects of the surgical procedure comprises enhancing effects from cavitation forces encountered by the apparatus during the surgical procedure.

50. The apparatus of claim 46, wherein said control means operates using a different timing sequence than a timing sequence used by the irrigation means, thereby enhancing effects of a surgical procedure.

51. The apparatus of claim 46, wherein said ultrasonic modulated power delivery means deliver ultrasonic energy in said plurality of short burst periods interspersed by multiple de minimis power application periods.

52. A method for providing modulated fluid pulses to an ocular region during a phacoemulsification procedure, the method comprising:

applying fluid to the ocular region using at least one modulated fluid pulse period, wherein each modulated fluid pulse period comprises:

applying fluid to the ocular region using a fluid pulse for a first period of time; and

applying de minimis fluid to the ocular region for a second period of time.

53. The method of claim 52, wherein time between said applying fluid and applying de minimis fluid is essentially zero.

54. The method of claim 52, further comprising applying modulated energy to the ocular region concurrent while applying fluid to the ocular region using at least one modulated fluid pulse period, wherein applying

modulated energy tends to induce transient cavitation within the ocular region environment.

55. The method of claim 54, wherein applying modulated energy occurs at a frequency differing from a frequency whereby fluid is delivered to the ocular region.

56. The method of claim 54, wherein applying modulated energy occurs at a frequency related to a frequency whereby fluid is delivered to the ocular region.

57. The method of claim 52, further comprising applying third fluid at a third fluid time subsequent to the second fluid time.

58. The method of claim 57, wherein amplitude of the third fluid is substantially identical to amplitude of the fluid.

59. The method of claim 57, wherein amplitude of the third fluid materially differs from amplitude of the fluid.

60. The method of claim 52, wherein each fluid pulse has duration less than approximately 20 milliseconds.

61. The method of claim 52, wherein each fluid pulse has duration less than approximately 2 milliseconds.

62. A method for providing fluid during a surgical procedure, comprising:

providing fluid using a fluid control device during a plurality of pulse periods, said pulse periods comprising a fluid surge period followed by a

fluid pause period, wherein fluid applied during the fluid surge period is greater than fluid applied during the fluid pause period.

63. The method of claim 62, wherein fluid is applied in conjunction with application of modulated ultrasonic energy.

64. The method of claim 62, wherein the fluid surge period duration is at most approximately twenty milliseconds.

65. The method of claim 62, wherein the fluid surge period duration is at most approximately two milliseconds.

66. The apparatus of claim 1, wherein said control means further controls and monitors irrigation pressure.

67. An apparatus comprising:

a handpiece having a needle and electrical means for ultrasonically vibrating said needle;

power source means for providing pulsed electrical power to the handpiece electrical means;

input means for enabling an operator to select an amplitude of the electrical pulses;

aspiration means for aspirating fluid during a surgical procedure conducted in a surgical environment, said aspiration means receiving fluid during at least one modulated fluid burst period, said modulated fluid burst period comprising a negative pressure differential pulse

delivered to the surgical environment, followed by a de minimis pressure differential pulse transmission; and

control means for controlling power supplied to the handpiece.

68. The apparatus of claim 67, said aspiration means comprising a fluid control device providing an ability to modulate pressure differential pulses having duration less than 100 milliseconds.

69. The apparatus of claim 67, wherein said control means operates in conjunction with the aspiration means to enhance effects of a surgical procedure.

70. The apparatus of claim 69, wherein enhancing effects of the surgical procedure comprises improving acquisition and removal of tissue during the surgical procedure.

71. The apparatus of claim 69, wherein enhancing effects of the surgical procedure comprises enhancing effects from cavitation forces encountered during the surgical procedure.

72. The apparatus of claim 67, wherein said aspiration means further provides a subsequent nonzero pressure differential pulse.

73. The apparatus of claim 72, wherein amplitude of said subsequent nonzero pressure differential pulse materially differs from amplitude of said pressure differential pulse.

74. The apparatus of claim 72, wherein amplitude of said subsequent nonzero pressure differential pulse is substantially identical to amplitude of said pressure differential pulse.

75. The apparatus of claim 67, wherein the pulse produced by the aspiration means has a duration of at most approximately 25 milliseconds.

76. The apparatus of claim 67, wherein the pulse produced by the aspiration means has a duration of at most approximately 8 milliseconds.

77. A method for aspirating fluid from an ocular region during a phacoemulsification procedure, comprising:

aspirating the ocular region by applying a series of modulated differential pressure pulses to the ocular region via a fluid control device.

78. The method of claim 77, wherein aspirating comprises delivering a series of pulses having a negative pressure differential from ambient for duration less than 100 milliseconds.

79. The method of claim 78, wherein said negative pressure differential pulses are interspersed by brief de minimis pressure differential pulse periods.

80. The method of claim 77, wherein negative pressure differential pulses are delivered using a phacoemulsification handpiece.

81. The method of claim 77, further comprising delivering modulated ultrasonic energy to the ocular region simultaneous with said aspirating.

82. The method of claim 81, wherein timing of modulated ultrasonic energy delivery corresponds to timing of the series of modulated pressure differential pulses.

83. The method of claim 81, wherein timing of modulated ultrasonic energy delivery differs from timing of the series of modulated pressure differential pulses.

84. The method of claim 81, wherein application of modulated ultrasonic energy delivery tends to induce transient cavitation in the ocular region.

85. The method of claim 77, wherein each pressure differential pulse is at most approximately 25 milliseconds.

86. The method of claim 77, wherein each pressure differential pulse is at most approximately eight milliseconds.